

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A motion picture data converter comprising:

an MPEG-2 decoding unit which decodes motion picture data in an MPEG-2 format into motion picture data in a non-compressed format;

a motion vector extraction unit which extracts MPEG-2 motion vector information in the MPEG-2 format from the motion picture data being decoded in said MPEG-2 decoding unit;

a motion compensation unit which generates ~~the~~ MPEG-4 motion vector information in the an MPEG-4 format if a number of macro blocks having non-zero motion vector information exceeds a threshold, by causing the MPEG-2 extracted motion vector information to be reflected in the motion compensation processing for the MPEG-4 format, and executes the motion compensation processing, using the generated MPEG-4 motion vector information; and

an MPEG-4 encoding unit which encodes motion picture data in the MPEG-4 format, using the motion compensation processed data output from said motion compensation unit and the motion picture data in the non-compressed format decoded in said MPEG-2 decoding unit.

2. (Currently Amended) The motion picture data converter according to claim 1, wherein said MPEG-4 encoding unit generates and outputs locally decoded motion picture data used in the motion compensation processing in said motion compensation unit, said motion picture data converter further comprises:

a display unit which simultaneously displays the locally decoded motion picture data output from said MPEG-4 encoding unit and the motion picture data in the non-compressed format decoded in said MPEG-2 decoding unit.

3. (Original) The motion picture data converter according to claim 1, further comprising a data multiplexing unit which multiplexes and outputs the motion picture data in the MPEG-2 format and the motion picture data in the MPEG-4 format output from said MPEG-4 encoding unit.

4. (Currently Amended) A computer program for making a computer convert motion picture data in an MPEG-2 format to motion picture data in an MPEG-4 format, the computer program making the computer execute instructions comprising the steps of:

decoding motion picture data in an MPEG-2 format into motion picture data in a non-compressed format;

extracting MPEG-2 motion vector information in the MPEG-2 format from the motion picture data being decoded;

generating ~~the~~ MPEG-4 motion vector information in ~~the~~ an MPEG-4 format if a number of macro blocks having non-zero motion vector information exceeds a threshold, by causing the extracted MPEG-2 motion vector information to be reflected in the motion compensation processing for the MPEG-4 format;

performing motion compensation processing using the generated MPEG-4 motion vector information; and

encoding motion picture data in the MPEG-4 format, using the motion compensation processed data and the motion picture data in the non-compressed format.

5. (Currently Amended) The computer program according to claim 4, wherein in the encoding step, locally decoded motion picture data used in the motion compensation processing are generated and output, wherein the computer program further making the computer simultaneously display the locally decoded motion picture data and the motion picture data in the non-compressed format.

6. (Currently Amended) The computer program according to claim 4, further making the computer multiplex and output the motion picture data in the MPEG-2 format and the motion picture data in the MPEG-4 format output in the encoding step.

7. (New) A method for transforming MPEG-2 encoded video data into MPEG-4 encoded video data, comprising:

- decoding video data which was encoded in an MPEG-2 format;
- extracting motion vector information from the decoded video data;
- associating MPEG-2 macro blocks with an MPEG-4 macro block;
- accumulating, for each MPEG-4 macro block, the motion vector information corresponding to the associated MPEG-2 macro blocks having a common position;
- determining whether a number of MPEG-4 macro blocks associated with non-zero accumulated motion vector information exceeds a number of MPEG-4 macro blocks associated with zero motion vector information; and
- generating a motion vector, for each MPEG-4 macro block, based upon the determining.

8. (New) The method according to claim 7, wherein the associating further comprises identifying the MPEG-2 macro blocks overlapping in an area corresponding to the MPEG-4 macro block.

9. (New) The method according to claim 8, wherein the associating further comprises classifying each identified MPEG-2 macro block for each position in at least one picture associated with the MPEG-2 format which corresponds to a picture in the MPEG-4 format.

10. (New) The method according to claim 7, wherein the accumulating further comprises:

evaluating the existence of motion vector information for a plurality of MPEG-2 macro blocks having the same position;

summing the motion vector information for the plurality of MPEG-2 macro blocks if the evaluation determines motion vector information exists for all of the plurality of MPEG-2 macro blocks; and

setting the motion vector information for the plurality of MPEG-2 macro block to zero if the evaluation determines that no motion vector information exists for any one of the plurality of MPEG-2 macro blocks.

11. (New) The method according to claim 7, wherein if the number of MPEG-4 macro blocks associated with non-zero accumulated motion vector information exceeds a number of MPEG-4 macro blocks associated with zero motion vector information, the generating further comprises:

computing an intermediate motion vector by averaging the vector components of the accumulated motion vector information; and

scaling the intermediate motion vector according to the MPEG-4 picture size to produce a final motion vector in the MPEG-4 format.

12. (New) The method according to claim 7, wherein if the number of MPEG-4 macro blocks associated with non-zero accumulated motion vector information does not exceed a number of MPEG-4 macro blocks associated with zero motion vector information, the generating does not produce a final motion vector in the MPEG-4 format.